

REMARKS

I. Amendment to the Claims

Upon entry of the foregoing amendment, twenty-five (25) claims are pending in the application. Of the pending claims, three (3) claims are independent.

II. Claim Rejections under 35 U.S.C. § 112

The Examiner has rejected Claim Nos. 39-61 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to point out and distinctly claim the subject matter which applicant regards as the invention. Applicant has amended claims 39-61 to address problems with antecedent basis and other issues raised by the Examiner, and Applicant believes that all such issues have been satisfactorily addressed. As such, Applicant respectfully requests that this rejection be withdrawn.

III. Claim Rejections under 35 U.S.C. § 102(b)

The Examiner has rejected Claim Nos. 39-61 as being anticipated by U.S. Patent No. 4,498,379 to Saylor, and/or U.S. Patent No. 4,718,336 to Munro, under 35 U.S.C. §102(b). In view of the amendments entered herewith, Applicant respectfully submits that these rejections have been rendered moot and requests that the rejections be withdrawn.

Specifically the present invention relies on electro-servo motors to accurately control movements of various components, such as wire/strap feeders and tying heads as discussed further below in Section V, the servo motors eliminating the need for devices such as limit switches to detect and signal when the wire or strap has reached a desired length. In contrast the systems of the cited references do not teach or suggest the use of electro-servo motors. Saylor

does not mention the possibility of using servo motors and instead in col. 7, lines 35-39 states that “reverse tensioning of the wire loop is effected by reversing the drive wheel 76 in accordance with a control signal generated by *limit switch* 90 supplied to the motor of the drive wheel after the wire is fed around the bale.” (Emphasis added)

Munro does not teach or suggest the use of servo motors and instead teaches the use of hydraulic motors. See, e.g., col. 5, lines 32-33 (“The controller operates a hydraulic motor 112 via suitable hydraulic valving.”) Instead, Munro teaches the use of limit switches to measure distances and control stoppage of components. See, e.g., col. 5, lines 8-10 (“The end of the forward stroke of the piston is detected in conventional manner by a *limit switch* connected to the controller.”) (emphasis added); see also col. 5, lines 22-24 (“As the wire transport head nears the home position, its location is sensed by a *limit switch* connected to the programmed controller.”) (emphasis added).

IV. Rejections under 35 U.S.C. § 103

The Examiner has rejected Claim Nos. 55, 58, and 59 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,498,370 to Saylor in view of U.S. Patent No. 6,035,773 to Rempe. In addition, the Examiner has rejected claims 51-53 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,498,370 to Saylor in view of U.S. Patent No. 5,239,919 to Maki et al. In view of the amendments entered herewith, Applicant respectfully submits that these rejections have been rendered moot and requests that the rejections be withdrawn.

The discussion above in Section III addresses the fact that the Saylor reference does not teach or suggest the use of electro-servo motors to control the movement and position of

components. Similarly, the combination of the Saylor and Rempe references also fails to teach or suggest the use of electro-servo motors, since Rempe does not teach or suggest this element. Also, as in the Saylor reference, Rempe instead teaches the use of devices external to the motor, such as switches, to detect limits and control components. See, e.g., col. 3, lines 50-51 (“Switches or sensors 39 are used to detect when the twine guides 26 are positioned in the end wrap positions 33.”); see also col. 3, lines 52-67 (describing sensor pulleys or wheels).

V. Support for Amendments

One advantage of the present system over other material baling systems is the use of electro-servo motors to drive wire or strap feeding as well as the tying heads. Since electro-servo motors can provide constant feedback as to their position this permits precise control of each of the steps involved in binding and tying, for example the amount of wire that is fed through the guide track. This control at the level of the motor permits the rate of wire or strap feeding to be slowed down when the wire is almost completely fed through the loop and thus allows the wire to come to a smoother stop, saving wear on the components. See paragraphs [0056], [0074], & [0011] – [0014] of the published application (Pub. No. US 2004/0054441). In contrast, prior art baling systems rely on the wire hitting a limit switch on the wire guide track to stop feeding of the wire through the track. Given a typical wire feed rate of ten feet per second, this stopping of wire feeding is sudden, producing stress on system components and also giving a less accurate measurement of the length of wire. See paragraph [0056].

Claims 39, 60, and 61 incorporate language which clarifies the importance of this distinct feature to the claimed system as a whole. Support for these amendments, which refer to the feed

drive comprising an electro-servo motor and the (predetermined) length of wire or strapping being determined by a number of rotations of the electro-servo motor drive shaft, is found in paragraph [0074] of the published application:

After completing its circuit around the bale the leading end of the baling wire arrives at the limit switch, 610. In the preferred embodiment this "limit switch" is the signal from the electro servo motor that a pre-configured number of rotations of its drive shaft, corresponding to the desired bale wire length, has been reached. The limit switch signal is received by the "loop complete" data status circuit, 612, which outputs a signal to the drive wheel servo to halt, 614. The "loop complete" data status circuit, 612, also signals the gripper to grip the wire, 615, and the tensioning pin solenoids to extend the tensioning pins into the plane of the bale wire loop, 616.

Pub. No. US 2004/0054441, ¶ [0074] (Emphasis added).

Claim 50 has been amended to clarify that the preconfigured tension corresponds to a preconfigured current amperage of the electro-servo motor of the wire or strap feeding mechanism. Since the current level is constantly monitored and because increased tension on the wire or strap leads to an increased current level in the motor, strap or wire tension can be monitored indirectly via motor current amperage. Support for this amendment is found in paragraph [0075] of the published application, which states that "[t]he baling control system memory has been pre-configured to relate predetermined desired tensions with corresponding torques generated by the drive servo, which in turn corresponds to predetermined electric servo current amperages."

The newly-entered claims and amendments to the claims entered herewith are fully supported by the originally-filed specification and as such no new matter is added.

VII. Conclusion

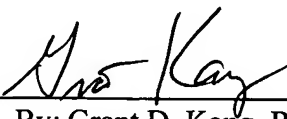
Applicant respectfully submits that the independent claims are allowable over the prior art of record, including the cited references. For similar reasons, and for the additional reasons set forth above, Applicant urge that the dependent claims are also allowable.

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment is respectfully requested.

Respectfully submitted,



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